

Installing Solaris 9 on a SPARC Workstation

ITOS Edition

\$Date: 2006/03/21 16:07:24 \$

Copyright 1999-2006, United States Government as represented by the Administrator of the National Aeronautics and Space Administration. No copyright is claimed in the United States under Title 17, U.S. Code.

This software and documentation are controlled exports and may only be released to U.S. Citizens and appropriate Permanent Residents in the United States. If you have any questions with respect to this constraint contact the GSFC center export administrator, <Thomas.R.Weisz@nasa.gov>.

This product contains software from the Integrated Test and Operations System (ITOS), a satellite ground data system developed at the Goddard Space Flight Center in Greenbelt MD. See <<http://itos.gsfc.nasa.gov>> or e-mail <itos@itos.gsfc.nasa.gov> for additional information.

You may use this software for any purpose provided you agree to the following terms and conditions:

1. Redistributions of source code must retain the above copyright notice and this list of conditions.
2. Redistributions in binary form must reproduce the above copyright notice and this list of conditions in the documentation and/or other materials provided with the distribution.
3. All advertising materials mentioning features or use of this software must display the following acknowledgement:

This product contains software from the Integrated Test and Operations System (ITOS), a satellite ground data system developed at the Goddard Space Flight Center in Greenbelt MD.

This software is provided "as is" without any warranty of any kind, either express, implied, or statutory, including, but not limited to, any warranty that the software will conform to specification, any implied warranties of merchantability, fitness for a particular purpose, and freedom from infringement and any warranty that the documentation will conform to their program or will be error free.

In no event shall NASA be liable for any damages, including, but not limited to, direct, indirect, special or consequential damages, arising out of, resulting from, or in any way connected with this software, whether or not based upon warranty, contract, tort, or otherwise, whether or not injury was sustained by persons or property or otherwise, and whether or not loss was sustained from or arose out of the results of, or use of, their software or services provided hereunder.

1 Overview

This is a recipe for installing Solaris 9 on a SPARC workstation that will run the ITOS. This recipe installs all the third party packages needed to run or maintain ITOS.

This recipe configures each workstation so that it can be a standalone system, a cluster client, or a cluster server.

The basic recipe is:

1. Install Solaris 9. See Chapter 2 [Install Solaris 9], page 1.
2. Install Patches. See Chapter 3 [Install Patches], page 3.
3. Upgrade Java. See Chapter 4 [Upgrade Java], page 4.
4. Configure NIS/NFS Server. See Chapter 6 [Configure NIS/NFS Server], page 6.
5. Configure Samba. See Chapter 7 [Configure Samba], page 8.
6. Configure Basics. See Chapter 5 [Configure Basics], page 5.
7. Setup to Run ITOS. See Chapter 8 [Setup to Run ITOS], page 8.
8. Install Packages to build ITOS. See <undefined> [Install Packages to build ITOS], page <undefined>.
9. Make a CDROM. See Chapter 10 [Make a CDROM], page 15.

2 Install Solaris 9

1. Boot the computer from the CD-ROM or DVD-ROM labeled ‘Solaris 9 Operating Environment’. You might need to `stop-A` to get to an ‘Ok’ prompt; from the ‘Ok’ prompt enter ‘boot cdrom’. It may take several minutes (10-30 depending on the machine) to boot from the disc. Eventually, you will be asked what language to run the installer in, select ‘English’ and then select ‘English’ as the default locale. OpenWindows and the Solaris installation wizard will then start ...
2. Click `Next` to advance to the ‘Network Connectivity’ panel. Select ‘Networked’ and click `Next`. On the ‘DHCP’ panel, select ‘No’ and click `Next`.
3. Enter this machine’s short host name. I.e., enter ‘sunland’, not ‘sunland.gsfc.nasa.gov’. (If you enter the long name, NIS gets confused; if you enter the short name, sendmail gets confused. Sun recommends entering the short name.)
4. Click `Next` to advance to the ‘IP Address’ panel. Enter the machine’s static IP address and click `Next`. Then enter the network’s subnet mask and click `Next`. On the ‘IPv6’ panel, select ‘Yes’ to enable IPv6 and click `Next`.
5. On the ‘Set the Default Route’ panel select ‘Specify One’ and click `Next`. Enter the IP address of the default gateway machine and click `Next`.
6. Do not enable Kerberos. Click `Next` to confirm.
7. Select ‘NIS’ on the ‘Name Service’ panel and click `Next`. If this is going to be an NIS server (cluster leader or standalone ITOS workstation) we will wind up changing the NIS setup later, but this works well for ITOS lab systems. On the next panel, enter the proper NIS domain name. (Insure that it is distinct from the DNS domain!)

8. On the NIS ‘Name Server’ panel, select ‘Specify One’ and click [\(Next\)](#). Enter the name and IP address of the NIS server and click [\(Next\)](#).
9. On the ‘Time Zone’ panel, select ‘Geographic Continent/Country/Region’ and click [\(Next\)](#). Select ‘Americas->United States->Eastern Time’ from the tree and click [\(Next\)](#). Confirm the current date and time and click [\(Next\)](#).
10. On the ‘Root Password’ panel, enter the root password for the machine twice and click [\(Next\)](#).
11. On the ‘Power Management’ panel, leave ‘Turn Power Management On’ selected and leave ‘Don’t ask, leave Power Management as set above’ selected and click [\(Next\)](#).
12. On the ‘Proxy Server Configuration’ panel, leave ‘Direct connection to the Internet’ selected and click [\(Next\)](#).
13. On the ‘Confirm Information’ panel, review the settings and click [\(Confirm\)](#) if the settings are satisfactory. The system will start another window system and a configuration wizard window will be opened ...
14. From the ‘Welcome’ panel click [\(Next\)](#). Select ‘Yes’ to reboot automatically and ‘Yes’ to eject the CD-ROM after installation and click [\(Next\)](#). Select ‘CD/DVD’ as the installation media type and click [\(Next\)](#), the CD will eject. Insert the disc labeled ‘Solaris 9 Software, 1 of 2’ and click [\(OK\)](#). The system will begin reading data off of the CD-ROM, this may take several minutes.
15. Eventually, you will arrive at a panel that asks you to select whether this is an upgrade or an initial install. Always select ‘Initial Install’, even if it is actually an upgrade. Click [\(Next\)](#) to continue.
16. On the ‘Select Type of Install’ panel, select ‘Custom Install’ and click [\(Next\)](#).
17. On the ‘Select Software Localizations’ panel, insure that the ‘North America->English (United States) (en_US)’ local is selected in the tree and click [\(Next\)](#). On the ‘Select System Local’ panel, insure that the ‘English (United States,ISO8859-1) (en_US.ISO8859-1)’ local is selected and click [\(Next\)](#).
18. On the ‘Select Products’ panel, select the components of the Solaris operating system that you wish to be installed and click [\(Next\)](#). Select ‘None’ for ‘Additional Products’ and click [\(Next\)](#).
19. On the ‘64-Bit Selection’ panel, select ‘Yes’ to include both 64- and 32-bit support if you are on a machine with an UltraSPARC processor. Click [\(Next\)](#) to continue.
20. On the ‘Select Solaris Software Group’ panel, select ‘Entire Group’ under ‘Default Packages’ and click [\(Next\)](#). Select the disk onto which Solaris 9 should be installed and click [\(Next\)](#). Select ‘No’ when asked to preserve any data on the hard disk and click [\(Next\)](#).
21. On the ‘Lay Out File Systems’ panel, click [\(Modify\)](#). The following is the suggested configuration for a modern disk:

‘/’ 600MB

‘/var’ 512MB

‘swap’ 512MB (or twice RAM, whichever is larger)

```
'/usr'      2048MB
'/export'   whatever's left
```

It is a good idea to verify that no free space remains before proceeding. After you are done laying out the hard disk, click **OK** and then click **Next**.

22. Confirm the settings on the 'Ready to Install' panel and click **Install Now**. Get some lunch or something - this will take a while. After a time, the CD will eject and you will be prompted to insert the disc labeled 'Solaris 9 Software, 2 of 2'.
23. When the installation finishes, the system will reboot. If you selected any supplemental software during the custom install, you may be prompted to insert the disc labeled 'Solaris 9 Software Supplement' after the system comes back up. After the supplemental software installation finishes, the system will eject the CD and reboot again.
24. Log in as root. We select CDE and set desktop options now (i.e., we like 'Point In Window To Make Active' and we hate 'Raise Window When Made Active'; we like 'Return to Home session' and we like the 'Logout Confirmation Dialog' to be off).
25. Before we can do much else, we need to set up some basic networking and other items:
 1. Edit '/etc/hosts'. Add the fully qualified host name to the line for this system.
 2. Create '/etc/resolv.conf'. This makes it a little bit easier to copy stuff from other machines. It should look something like:

```
# cd /etc
/etc# cat > resolv.conf
domain my.domain
nameserver 99.99.99.99
^D
/etc#
```

3 Install Patches

1. Retrieve the latest public patch cluster from Sun (<http://sunsolve.Sun.COM/pub-cgi/show.pl?target=9.0.1.1>). Be sure to get the cluster for the appropriate CPU. Save the file on a filesystem with plenty of space; for example, '/export'. The latest patch cluster for Java 2 Standard Edition (J2SE) should also be obtained.
2. Begin by extracting the contents of the patch clusters using the following commands:

```
# cd /export
# unzip 9_Recommended.zip
# unzip J2SE_Solaris_9_Recommended.zip
```
3. To install the patch clusters, it is strongly recommended that the system be in single-user mode. Get there by doing:

```
# reboot -- -s
```

The system reboots to single-user mode. When prompted, enter the root password to log in.
4. Now, assuming you downloaded the patch file to '/export', unzip and install the patch as follows:

```
# mountall
# cd /export/9_Recommended
# ./install_cluster
# cd /export/J2SE_Solaris_9_Recommended
# ./install_cluster
```

Expect the installation to take a couple hours..

5. When the installation completes successfully, remove what we downloaded and unzipped and reboot:

```
# cd ..
# rm -rf 9_Recommended*
# rm -rf J2SE_Solaris_9_Recommended*
# reboot
```

4 Upgrade Java

1. Retrieve the J2SE v 1.4.2_06 Software Development Kit (<http://java.sun.com/j2se/1.4.2/download.html>) from Sun. Be sure to obtain both the 32-bit and 64-bit archive files for the appropriate CPU. Save the files on a filesystem with plenty of space; for example, '/export'. Please note that the build number '06' of the SDK release may change, but the version number should remain 1.4.2.
2. Extract the contents of the archive files into temporary directories using the following commands:

```
# cd /export
# mkdir j2sdk-1_4_2_06-sol9-sparc
# cd j2sdk-1_4_2_06-sol9-sparc
# zcat ../j2sdk-1_4_2_06-sol9-sparc.tar.Z | tar xf -
# cd ..
# mkdir j2sdk-1_4_2_06-sol9-sparcv9
# cd j2sdk-1_4_2_06-sol9-sparcv9
# zcat ../j2sdk-1_4_2_06-sol9-sparcv9.tar.Z | tar xf -
```

3. Remove any existing Java packages using the following commands:

```
# pkgrm SUNWj3dmo SUNWj3man SUNWj3rt SUNWj3dev
# pkgrm SUNWj3rtx SUNWj3dvx
```

4. Install the new Java packages using the following commands:

```
# cd /export/j2sdk-1_4_2_06-sol9-sparc
# pkgadd -d . SUNWj3cfg SUNWj3dmo SUNWj3man SUNWj3rt SUNWj3dev
# cd /export/j2sdk-1_4_2_06-sol9-sparcv9
# plgadd -d . SUNWj3rtx SUNWj3dvx SUNWj3dmx
```

5. You can verify the installation at this point by using the following command:

```
# /usr/j2se/bin/java --version
```

The output should be similar to the following and reflect the newly installed version of the J2SE SDK:

```
java version "1.4.2_06"
Java(TM) 2 Runtime Environment, Standard Edition (build 1.4.2_06-b03)
```

```
Java HotSpot(TM) Client VM (build 1.4.2_06-b03, mixed mode)
```

6. When the upgrade is complete, remove the downloaded and extracted files:

```
# cd /export
# rm -rf j2sdk-1_4_2_06-sol9-sparc*
```

5 Configure Basics

1. Protect inett services. First, comment out everything in '/etc/inett.conf' except the lines for 'rpc.ttdbserverd', 'dtspc', 'printer', 'rstatd', 'cachefsd', 'gssd', and 'rpc.smserverd'. All execpt the last three, which use the `ticotsord` loopback transport, need to be protected with tcp wrappers. To do this, for each entry, insert '/usr/sfw/sbin/tcpd' before the application pathname, and delete the repeated application name, as shown in this example.

```
dtspc stream tcp6 nowait root /usr/dt/bin/dtspcd dtspcd
...becomes...
dtspc stream tcp6 nowait root /usr/sfw/sbin/tcpd /usr/dt/bin/dtspcd
```

Be sure to complete the TCP Wrappers setup by following instructions in the ITOS section "Configuraton" in *Installing tcp_wrappers-7.6*.

2. Disable sendmail.

```
/etc# cd rc2.d
/etc/rc2.d# mv S88sendmail no.S88sendmail
/etc/rc2.d# cd /
/#
```

3. Give root a reasonable working environment:

```
#!/cat > .profile
PATH=/bin:/sbin:/usr/sbin:/usr/local/bin:/usr/dt/bin
PATH=$PATH:/usr/openwin/bin:/usr/ccs/bin:/usr/ucb
alias lf='ls -CF'
if [ x$PS4 != x ] ; then
    set -o emacs
    PS1='$PWD# '
fi
export ENV=/.profile
^D
#!/cat > .bashrc
PATH=/bin:/sbin:/usr/sbin:/usr/local/bin:/usr/dt/bin
PATH=$PATH:/usr/openwin/bin:/usr/ccs/bin:/usr/ucb
alias lf='ls -CF'
PS1='\w# '
^D
/#

```

4. Fix '/etc/dt/config/Xaccess'

```
# mkdir /etc/dt
# mkdir /etc/dt/config
# touch /etc/dt/config/Xaccess
```

6 Configure NIS/NFS Server

1. We initially configure all systems as NIS servers; we'll later reconfigure most systems to be clients. This makes it easier to break and reconfigure clusters.

Create ‘/var/yp/maps/’, which should be owned by root with permissions drwx-----:

```
# mkdir /var/yp/maps
# chmod 700 /var/yp/maps
# cd /var/yp/maps
/var/yp/maps#
```

The following are minimal starting points for populating ‘/var/yp/maps’:

```
'auto_home'
    /var/yp/maps# cat > auto_home
    * myname:$DIR/home/&
    ^D
    /var/yp/maps# mkdir $DIR/home
    /var/yp/maps#
'bootparams'
    /var/yp/maps# touch bootparams
    /var/yp/maps#
'ethers'
    /var/yp/maps# touch ethers
    /var/yp/maps#
'group'
    /var/yp/maps# touch group
    /var/yp/maps#
'hosts'
    /var/yp/maps# touch hosts
    /var/yp/maps#
'netgroup'
    /var/yp/maps# touch netgroup
    /var/yp/maps#
'nwetworks'
    /var/yp/maps# touch nwetworks
    /var/yp/maps#
'netmasks'
    /var/yp/maps# touch netmasks
    /var/yp/maps#
'passwd'
    /var/yp/maps# touch passwd
    /var/yp/maps#
'protocols'
```

```

/var/yp/maps# touch protocols
/var/yp/maps#
'publickey'
/var/yp/maps# touch publickey
/var/yp/maps#
'rpc'
/var/yp/maps# touch rpc
/var/yp/maps#
'services'
/var/yp/maps# touch services
/var/yp/maps#
'shadow'
/var/yp/maps# touch shadow
/var/yp/maps#

```

2. Fix permissions:

```

/var/yp/maps# chmod 600 *
/var/yp/maps#

```

3. Edit '/var/yp/Makefile'.

- Change 'DIR=/etc' to 'DIR=/var/yp/maps'.
- Change 'PWDIR = /etc' to 'PWDIR = /var/yp/maps'

4. Create '/var/yp/securenets'. This is for security; the server will only serve hosts listed in this file. Lines in this file look like:

```

/var/yp/maps# cd /var/yp
/var/yp# cat > securenets
host 99.99.99.99
^D
/var/yp# chmod 600 securenets
/var/yp# cd /var/yp/maps

```

The IP number - not the DNS name - must be used.

5. Set the NIS domainname to the new cluster's domainname:

```

/var/yp/maps# domainname nis-'hostname'
/var/yp/maps# domainname > /etc/defaultdomain

```

6. Create the master NIS database:

```

/var/yp/maps# /usr/sbin/ypinit -m

```

7. Choose 'nsswitch'.

```

/var/yp/maps# cd /etc
/etc# cp nsswitch.nis nsswitch.conf

```

8. Fix '/etc/nsswitch.conf'. Everything except 'passwd', 'group', 'hosts', 'netgroup', 'automount', and 'aliases' should be 'files'. The 'hosts' entry should be changed to 'files nis'.

9. Share home directories. "myhost" below can start out as this workstation's hostname. Later, add the names of other workstations in the cluster.

```

/etc# cd dfs
/etc/dfs# cat >>dfstab
share -F nfs -o rw=myhost -d "home directories" /export/home
^D
/etc/dfs# sh dfstab
/etc/dfs# cd ..
/etc#

```

10. Test it out by running '/usr/lib/netsvc/yp/ypstart'.

7 Configure Samba

1. Create 'smb.conf'

```

/etc# cd sfw
/etc/sfw# cp smb.conf-example smb.conf
/etc/sfw#

```

2. Modify 'smb.conf'.

- Change the 'workgroup' name from 'MYGROUP' to 'ITOS'.
- Uncomment the 'local master = no' entry.
- Uncomment the 'encrypt passwords = yes' entry.

3. Start Samba

```

/etc/sfw# cd /etc/init.d
/etc/init.d# ./samba start
/etc/init.d# cd ..
/etc#

```

4. To add user accounts and passwords to Samba, use the smbpasswd command.

```
/etc# smbpasswd -a <username>
```

8 Setup to Run ITOS

1. ITOS uses System V semaphores, and configures them with the automatic undo option, so we need to enlarge the number of undo structures allocated by the kernel. Edit '/etc/system'; add the following line:

```
set semsys:seminfo_semmnu = 100
```

Note that you must reconfigure (i.e., reboot -- -r) for this to take effect.

2. We build ITOS on Solaris 7, which does not come with Perl, so in '/usr/local/bin' create symbolic a link to '/bin/perl'.

```

/etc# cd /usr/local/bin
/usr/local/bin# ln -s /bin/perl

```

3. Solaris 9 comes with everything needed to run ITOS, except libgcc, so install libgcc-3.3-sol9-sparc-local.gz, which we originally obtained from <ftp://ftp.sunfreeware.com/pub/freeware/sparc/9/libgcc-3.3-sol9-sparc-local.gz> by way of Sun Freeware (<http://www.sunfreeware.com/>). This package is required by ITOS.

```
$DIR/local-src# gunzip $T/libgcc-3.3-sol9-sparc-local.gz
$DIR/local-src# pkgadd -d libgcc-3.3-sol9-sparc-local
follow the prompts ...
$DIR/local-src# rm -rf libgcc-3.3-sol9-sparc-local
$DIR/local-src#
```

4. Also install GNU cpio, which is needed to make Triana- and SECCHI-compatible file loads. Redistribution and use of this cpio is allowed under the GNU GPL. We have been using version 2.4.2, but the latest version probably will work.

```
$DIR/local-src# gtar zxf $T/cpio2.4.2.tar.gz
$DIR/local-src# cd cpio2.4.2
$DIR/local-src/cpio2.4.2# ./configure && make install
$DIR/local-src/cpio2.4.2# cd ..
$DIR/local-src#
```

5. We install these additional packages to make the system more useable. All are from <http://www.sunfreeware.com/>.

- apache-2.0.52-sol9-sparc-local.gz An older Apache comes with Solaris 9, but is no longer maintained by Apache.org. This is the latest, and requires the following:
 - db-4.2.52.NC-sol9-sparc-local.gz
 - expat-1.95.5-sol9-sparc-local.gz
 - gdbm-1.8.3-sol9-sparc-local.gz
 - libiconv-1.8-sol9-sparc-local.gz
 - openssl-0.9.7e-sol9-sparc-local.gz
 - (libgcc also is required for apache)
- firefox1.0.4-sparc-sun-solaris2.8.tar.bz2 A better browser, which requires the following:
 - glib-1.2.10-sol9-sparc-local.gz
 - gtk+-1.2.10-sol9-sparc-local.gz
- Equip Firefox with the Java plugin:

```
/# cd /usr/local/firefox1.0.4/plugins
/# ln -s /usr/java/jre/plugin/sparc/ns7/libjavaplugin_oji.so
```
- tar-1.14-sol9-sparc-local.gz GNU tar.
- vim-6.3-sol9-sparc-local-gz Some still like vi. This requires:
 - ncurses-5.4-sol9-sparc-local.gz
- wget-1.9.1-sol9-sparc-local.gz A non-interactive utility for retrieving resources from the Internet.

9 Install Packages to Build ITOS

THIS CHAPTER NEEDS TO BE UPDATED.

1. Install GNUGcc.2.95.3.SPARC.64bit.Solaris.8.pkg.tar, which we originally obtained from <http://www.sunsite.unc.edu/>. Redistribution and use of GNUGcc is allowed under the GNU license.

```
$DIR/local-src# gtar zxf $T/GNUgcc.2.95.3.SPARC.32bitSolaris.8.pkg.tgz
$DIR/local-src# pkgadd -d .
follow the prompts ...
/usr/local-src# rm -rf GNUgcc
/usr/local-src#
```

2. Install GNUmake-3.78.1.SPARC.32bit.Solaris.8.pkg.tgz, which we originally obtained from <http://www.sunsite.unc.edu/>. Redistribution and use of GNUmake is allowed under the GNU license.

```
$DIR/local-src# gtar zxf $T/GNUmake-3.78.1.SPARC.32bit.Solaris.8.pkg.tgz
$DIR/local-src# pkgadd -d .
follow the prompts ...
$DIR/local-src# rm -rf GNUmake
$DIR/local-src#
```

3. Perl5.005_03 is pre-installed.
4. Install GNUM4.1.4.SPARC.32bit.Solaris.8.pkg.tgz. Redistribution and use of m4 is allowed under the GNU license.

```
$DIR/local-src# gtar zxf $T/GNUM4.1.4.SPARC.32bit.Solaris.8.pkg.tgz
$DIR/local-src# pkgadd -d .
follow the prompts ...
$DIR/local-src# rm -rf GNUM4
$DIR/local-src#
```

5. Install GNUautoconf.2.13.SPARC.32bit.Solaris.8.pkg.tgz. Redistribution and use of autoconf is allowed under the GNU license.

```
$DIR/local-src# gtar zxf $T/GNUautoconf.2.13.SPARC.32bit.Solaris.8.pkg.tz
$DIR/local-src# pkgadd -d .
follow the prompts ...
$DIR/local-src# rm -rf GNUautoconf
$DIR/local-src#
```

6. Install GNUautomake.1.4.SPARC.32bit.Solaris.8.pkg.tar.gz. Redistribution and use of automake is allowed under the GNU license.

```
$DIR/local-src#gtar zxf $T/GNUautomake.1.4.SPARC.32bit.Solaris.8.pkg.tar.gz
$DIR/local-src# pkgadd -d .
follow the prompts ...
$DIR/local-src# rm -rf GNUautomake
$DIR/local-src#
```

7. Install GNULibtool.1.3.5.SPARC.32bit.Solaris.8.tar.gz. Redistribution and use of libtool is allowed under the GNU license.

```
$DIR/local-src# gtar zxf $T/GNULibtool.1.3.5.SPARC.32bit.Solaris.8.tar.gz
$DIR/local-src# pkgadd -d .
follow the prompts ...
$DIR/local-src# rm -rf GNULibtool
$DIR/local-src#
```

8. GNU Bash-2.03.0 is pre-installed. Redistribution and use of bash is allowed under the GNU license.

9. Install GNU patch-2.5.4 is pre-installed.. Redistribution and use of patch is allowed under the GNU license.
10. Install prngd.0.9.17.SPARC.64bit.Solaris.8.tar.gz, which we originally obtained from <http://www.sunsite.unc.edu/>. Redistribution and use of Perl is allowed under the Artistic license.

```
$DIR/local-src# gtar zxf $T/prngd.0.9.17.SPARC.64bit.Solaris.8.tar.gz
$DIR/local-src# pkgadd -d .
follow the prompts ...
$DIR/local-src# rm -rf prngd
$DIR/local-src#
```

11. Install openssl.0.9.6a.SPARC.64bit.Solaris.8.pkg.tar.gz, which we originally obtained from <http://www.sunsite.unc.edu/>. Redistribution and use of Perl is allowed under the Artistic license.

```
$DIR/local-src# gtar zxf $T/openssl.0.9.6a.SPARC.64bit.Solaris.8.pkg.tar.gz
$DIR/local-src# pkgadd -d .
follow the prompts ...
$DIR/local-src# rm -rf openssl
$DIR/local-src#
```

12. Install openssh.2.9.p1-with-tcp-wrappers.7.6.ipv6.1.SPARC.64bit. Solaris.8.tar.gz, which we originally obtained from <http://www.sunsite.unc.edu/>. Redistribution and use of Perl is allowed under the Artistic license.

```
$DIR/local-src# gtar zxf $T/openssh.2.9.p1-with-tcp-wrappers.7.6.ipv6.1
.SPARC.64bit.Solaris.8.tar.gz
$DIR/local-src# pkgadd -d .
follow the prompts ...
$DIR/local-src# rm -rf openssh
$DIR/local-src#
```

13. Install mved. License???.

```
$DIR/local-src# cp $T/mved /usr/local/bin
$DIR/local-src# chmod 555 /usr/local/bin/mved
$DIR/local-src#
```

14. Install ImageMagick.5.2.6.SPARC.64bit.Solaris.8.pkg.tar.gz. Originally obtained from <http://www.ImageMagick.org/>.

```
$DIR/local-src# gtar zxf
$T/ImageMagick.5.2.6.SPARC.64bit.Solaris.8.pkg.tar.gz
$DIR/local-src# pkgadd -d .
follow the prompts ...
$DIR/local-src# rm -rf immagick
$DIR/local-src#
```

15. tcsh is pre-installed.

16. Install GNUMbison.1.28.SPARC.32bit.Solaris.8.pkg.tgz. Redistribution and use of bison is allowed under the GNU license.

```
$DIR/local-src# gtar zxf $T/GNUMbison.1.28.SPARC.32bit.Solaris.8.pkg.tgz
$DIR/local-src# pkgadd -d .
follow the prompts ...
```

```
$DIR/local-src# rm -rf GNUbison
$DIR/local-src#
```

17. Install flex.2.5.4a.SPARC.64bit.Solaris.8.pkg.tar.gz. Redistribution and use of flex is allowed under the GNU license.

```
$DIR/local-src# gtar zxf $T/flex.2.5.4a.SPARC.64bit.Solaris.8.pkg.tar.gz
$DIR/local-src# pkgadd -d .
follow the prompts ...
$DIR/local-src# rm -rf flex
$DIR/local-src#
```

18. Install cvs-1.10.8.tar.gz (from <http://download.cyclic.com/pub/>): Redistribution and use of cvs is allowed under the GNU license.

```
$DIR/local-src# gtar zxf $T/cvs-1.10.8.tar.gz
$DIR/local-src# cd cvs-1.10.8
$DIR/local-src/cvs-1.10.8# ./configure && make install
$DIR/local-src/cvs-1.10.8# cd ..
$DIR/local-src#
```

19. Install tcl8.3.0.tar.gz and tk8.3.0.tar.gz, which we obtained from <http://dev.scriptics.com/software/t>. License???

```
$DIR/local-src# gtar zxf $T/tcl8.3.0.tar.gz
$DIR/local-src# cd tcl8.3.0/unix
$DIR/local-src/tcl8.3.0/unix# ./configure --enable-gcc --enable-shared
$DIR/local-src/tcl8.3.0/unix# make install
$DIR/local-src/tcl8.3.0/unix# cd ../..
$DIR/local-src# gtar zxf $T/tk8.3.0.tar.gz
$DIR/local-src# cd tk8.3.0/unix
$DIR/local-src/tk8.3.0/unix# ./configure --enable-gcc
$DIR/local-src/tk8.3.0/unix# make install
$DIR/local-src/tk8.3.0/unix# cd ../..
$DIR/local-src# (cd /usr/local/bin; ln -s tclsh8.3 tclsh)
$DIR/local-src# (cd /usr/local/bin; ln -s wish8.3 wish)
$DIR/local-src#
```

20. less-340 is pre-installed. Redistribution and use of less is allowed under the GNU license.

21. Install gdb.5.0.SPARC.64bit.Solaris.8.pkg.tar.gz Redistribution and use of gdb is allowed under the GNU license.

```
$DIR/local-src# gtar zxf $T/gdb.5.0.SPARC.64bit.Solaris.8.pkg.tar.gz
$DIR/local-src# pkgadd -d .
follow the prompts ...
$DIR/local-src# rm -rf gdb
$DIR/local-src#
```

22. Install xv-3.10a.tar.gz. License???

```
$DIR/local-src# tar zxf $T/xv-3.10a.tar.gz
$DIR/local-src# cd xv-3.10a
$DIR/local-src/xv-3.10a#
$DIR/local-src/xv-3.10a# make CC=gcc
```

```
$DIR/local-src/xv-3.10a# make install
$DIR/local-src/xv-3.10a# cd ..
$DIR/local-src#
```

23. Install JLex 1.2.5. (We got it from <http://www.cs.princeton.edu/~appel/modern/java/JLex/>). License???

```
$DIR/local-src# mkdir /usr/local/JLex
$DIR/local-src# cd /usr/local/JLex
/usr/local/JLex# cp $T/JLex-1.2.5-Main.java Main.java
/usr/local/JLex# javac Main.java
/usr/local/JLex# cd $DIR/local-src
$DIR/local-src#
```

24. Install acroread (we got sunsparc-rs-405.tar.gz from <http://www.adobe.com/> and renamed it acroread-sunsparc-rs-405.tar.gz): License???

```
$DIR/local-src# gtar zxf acroread-sunsparc-rs-405.tar.gz
$DIR/local-src# cd SSOLRS.install
$DIR/local-src/SSOLRS.install# ./INSTALL
accept the license agreement
install in /usr/local/Acrobat4 (not /opt/Acrobat4)
yes, create the directory
$DIR/local-src/SSOLRS.install# cd ..
$DIR/local-src# (cd /usr/local/bin; ln -s ..Acrobat4/bin/acroread .)
$DIR/local-src#
```

25. Netscape-Communicator 4.7 is Pre-installed.

26. Install teTeX.1.0.7+texmf.1.0.2.SPARC.64bit.Solaris.8.pkg.tar.gz) License???

```
$DIR/local-src# gtar zxf
$T/teTeX.1.0.7+texmf.1.0.2.SPARC.64bit.Solaris.8.pkg.tar.gz
$DIR/local-src# pkgadd -d .
follow the prompts ...
$DIR/local-src# rm -rf tetexmf
$DIR/local-src#
```

27. Install dvipdfm.0.13.2b.SPARC.64bit.Solaris.8.pkg.tar.gz. License???

```
$DIR/local-src# gtar zxf
$T/dvipdfm.0.13.2b.SPARC.64bit.Solaris.8.pkg.tar.gz
$DIR/local-src# pkgadd -d .
follow the prompts ...
$DIR/local-src# rm -rf dvipdfm
$DIR/local-src#
```

28. install texinfo.3.12i.texi2www.SPARC.64bit.Solaris.8.pkg.tar.gz Redistribution and use of texinfo is allowed under the GNU license.

```
$DIR/local-src# gtar zxf
$T/texinfo.3.12i.texi2www.SPARC.64bit.Solaris.8.pkg.tar.gz
$DIR/local-src# pkgadd -d .
follow the prompts ...
$DIR/local-src# rm -rf tinfowww
$DIR/local-src#
```

29. install md5.tar.gz. License???

```
$DIR/local-src# mkdir md5
$DIR/local-src# cd md5
$DIR/local-src/md5# gtar zxf $T/md5.tar.gz
Edit Makefile; change 'cc' to 'gcc'
$DIR/local-src/md5# make
$DIR/local-src/md5# cp md5 /usr/local/bin
$DIR/local-src/md5# cd ..
$DIR/local-src#
```

30. Install glib.1.2.10.SPARC.64bit.Solaris.8.pkg.tar.gz and gtk+-1.2.8.tar.gz. Redistribution and use of glib and gtk+ are allowed under the GNU license.

```
$DIR/local-src# gtar zxf $T/glib.1.2.10.SPARC.64bit.Solaris.8.pkg.tar.gz
$DIR/local-src# pkgadd -d .
follow the prompts ...
$DIR/local-src# rm -rf glib
$DIR/local-src#
$DIR/local-src# gtar zxf $T/gtk+-1.2.8.tar.gz
$DIR/local-src# cd gtk+-1.2.8
$DIR/local-src/gtk+-1.2.8# LD_LIBRARY_PATH=/usr/local/lib ./configure
$DIR/local-src/gtk+-1.2.8# make install
$DIR/local-src/gtk+-1.2.8# cd ..
$DIR/local-src#
```

31. Install gimp-1.0.4.tar.gz and gimp-data-extras-1.0.0.tar.gz Redistribution and use of the gimp is allowed under the GNU license.

```
$DIR/local-src# gtar zxf $T/gimp-1.0.4.tar.gz
$DIR/local-src# cd gimp-1.0.4
$DIR/local-src/gimp-1.0.4# LD_LIBRARY_PATH=/usr/local/lib ./configure
$DIR/local-src/gimp-1.0.4# make install
$DIR/local-src/gimp-1.0.4# cd ..
$DIR/local-src# gtar zxf $T/gimp-data-extras-1.0.0.tar.gz
$DIR/local-src# cd gimp-data-extras-1.0.0
$DIR/local-src/gimp-data-extras-1.0.0# ./configure && make install
$DIR/local-src/gimp-data-extras-1.0.0# cd ..
$DIR/local-src#
```

32. Apache_1.3 is pre-installed.

33. samba-2.0.6.tar.gz

```
$DIR/local-src# gtar zxf $T/samba-2.0.6.tar.gz
$DIR/local-src# cd samba-2.0.6/source
samba-2.0.6/source# ./configure --with-automount
                         --with-private-dir=/var/samba/private
                         --with-lockdir=/var/samba/locks
                         --with-swatdir=/var/samba/swat
samba-2.0.6/source# mkdir /var/samba
samba-2.0.6/source# make && make install
samba-2.0.6/source# cd ../..
$DIR/local-src#
```

34. xautolock-pl15.tgz, which we obtained from <ftp://ftp.x.org/contrib/applications/>.

```
$DIR/local-src# gtar zxf $T/xautolock-pl15.tgz
$DIR/local-src# cd xautolock-pl15
$DIR/local-src/xautolock-pl15# xmkmf
$DIR/local-src/xautolock-pl15# make CC=gcc CCOPTIONS= PICFLAGS=-
fpic
$DIR/local-src/xautolock-pl15# cd ..
$DIR/local-src#
```

BINDIR=/usr/local/bin install

35. xxx

36. Install StarOffice from Solaris 9 distribution cdrom.

37. Installation of Motif 2 is necessary if using the Solaris 2.6 compiled version of ITOS.
It can be obtained from the www.opengroup.org/motif site.

10 Make a CDROM

At this point the workstation is configured well enough to make a CDROM that will help install other systems.

10.0.1 Create and Populate the ‘\$DIR/cdrom-image’ Directory

The first step in making our CDROM is to create the files and directories we want on the CDROM. We'll put these under ‘\$DIR/cdrom’. The CDROM will contain:

- ‘AAAREADME’ (named so it appears first in an `ls` listing) briefly explains what the CD is all about.
- ‘INSTALL’ is a perl script that performs the bulk of the installation.
- ‘etc/’ contains files and directories that get installed in ‘/etc’.
- ‘export/’ contains ‘/usr/local’ (in ‘\$DIR/usr+local’) and a handful of mostly empty home directories.
- ‘install-solaris9.ascii’ is this document, created via `makeinfo --no-headers --no-validate install-solaris9.texi > install-solaris9.ascii`.
- ‘slash/’ contains user `root`’s ‘`.profile`’, ‘`.bashrc`’, and ‘`.Xdefaults`’.
- ‘usr/’ contains the replacement ‘`/usr/dt/bin/Xsession`’, and also ‘`/usr/openwin/lib/libXpm.so.4.11`’. (The installation script will create symbolic link ‘`/usr/openwin/libXpm.so`’).
- ‘var/’ contains ‘`var/yp/Makefile`’, ‘`var/yp/maps`’, and ‘`var/samba/`’.
- ‘zzz/’ (‘`zzz/README`’, really) protects against a bug in some versions of `mkisofs`, where the very last file wouldn’t make it into the filesystem.

10.0.2 Create \$DIR/cdrom-image.iso

```
$DIR# mkisofs -d -D -R -o cdrom-image.iso cdrom-image
it's normal to get a bunch of messages.
```

10.0.3 Burn the CDROM

We usually have to do this on a different computer where cdrecord has been installed (we haven't been able to get cdrecord to work under Solaris; however it works just fine under FreeBSD):

```
# cdrecord -v -dev=2,0 -data cdrom-image.isofs
the 2 in -dev=2,0 is the SCSI target
```

Appendix A Misc procedures

A.1 Running sys-unconfig to change NIS domain and/or IP address

The sys-unconfig command allows you to change your NIS domain or IP address.

1. Run **sys-unconfig**. The system will halt. After the machine halts you can power it off to move it to its new location.
2. Boot the computer. If you never powered it off, type **boot** at the 'ok' prompt.
3. Select '0' (English) at the 'Select a Language' prompt.
4. Select '6' (USA ISO8859-1) at the next prompt.
5. At the next prompt enter the machine's short host name. I.e, enter 'sunland', not 'sunland.gsfc.nasa.gov'. Press **F2** to continue.
6. At the 'Networked' prompt select 'Yes'. Press **F2** to continue.
7. At the 'IP Address' prompt, enter the machines IP address. Press **F2** to continue.
8. At the 'Confirm Information' prompt, press **F2** to continue.
9. At the 'Name Service' prompt, select 'None' and press **F2** to continue.
10. At the 'Confirm Information' prompt, press **F2** to continue.
11. At the 'Subnets' prompt, select 'Yes'.
12. At the 'Netmask' prompt, enter the netmask.
13. At the first 'Time Zone' prompt, select 'United States' and press **F2** to continue.
14. At the second 'Time Zone' prompt, select the appropriate time zone and press **F2** to continue.
15. At the 'Date and Time' prompt, make appropriate changes and press **F2** to continue.
16. At the 'Confirm Information' prompt, press **F2** to continue.
17. Enter a Root password. This should be something hard to guess (and hopefully easy to remember). Don't use "ti^EZ2g" (this is not easy to guess – think about it).
18. Re-enter the Root password.
19. No, we don't want 'this automatic power-saving shutdown'.
20. No, we don't want 'the system to ask again, when you reboot next'.
21. Log in as root

22. Check ‘/etc/hosts’. Make sure there’s an entry for this machine, and make sure that entry has the fully qualified name first. Edit if necessary. ‘/etc/hosts’ should look something like:

```
127.0.0.1      localhost
128.184.232.163  yaya.yoyodyne.com yaya loghost
```

23. Check ‘/etc/auto_direct’; make sure it doesn’t reference the old host name. Edit if necessary.
24. Check ‘/etc/auto_home’; make sure it doesn’t reference the old host name. Edit if necessary.
25. Create ‘/etc/defaultdomain’.
26. Create ‘/etc/defaultrouter’.
27. Check ‘/etc/resolv.conf’.
28. [NIS server only] Check ‘/var/yp/maps/auto_direct’.
29. [NIS server only] Check ‘/var/yp/maps/auto_home’.
30. [NIS server only] Check ‘/var/yp/maps/hosts’.
31. [NIS server only] Run **domainname ‘cat /etc/defaultdomain’**
32. [NIS server only] Run **ypinit -m**
33. [NIS server only] Check ‘/var/yp/securenets’. Make sure your new IP address is included. BEWARE OF TYPOS!
34. Check ‘/etc/nsswitch.conf’. It should look like ‘/etc/nsswitch.files’ except the *passwd*, *group*, *hosts*, *netgroup*, *automount*, and *aliases* should say ‘*files nis*’ instead of ‘*files*’.
35. Reboot.

A.2 Misc tasks

Getting a new disk to mount during boot:

Edit ‘/etc/vfstab’; for example, to mount the disk at target 1 as ‘/x’ add the line:

```
/dev/dsk/c0t1d0s2  /dev/rdsk/c0t1d0s2  /x  ufs  2  yes  -
```

Changing the X server’s resolution and color depth:

Let’s suppose your brand new Ultra 5 comes up at 1280x1024x76Hz with 8 bit color and you’d like to change it to 1152x900x76 with 24 bit color:

First, change the resolution. The exact command depends on the kind of frame buffer you have, so The first thing is to figure out what kind of frame buffer it has and how to control the frame buffer. On an Ultra 5 the command is ‘/usr/sbin/m64config’; this was inferred via

```
$ ls -l /dev/fb
lrwxrwxrwx  1 root      root 42 Jun 12 01:30 /dev/fb ->
/devices/pci@1f,0/pci@1,1/SUNW,m64B@2:m640
$ ls -l /usr/sbin/*config
/usr/sbin/auditconfig   /usr/sbin/ifconfig      /usr/sbin/sysidconfig
```

```
/usr/sbin/drvconfig      /usr/sbin/m64config  
/usr/sbin/hostconfig     /usr/sbin/sys-unconfig
```

On another machine, the command might be '/usr/sbin/ffbconfig'.

Anyway, to change an Ultra 5's resolution use a command like:

```
# /usr/sbin/m64config -res 1152x900x76
```

Once the resolution is right, you can change the color depth by copying '/usr/dt/config/Xservers' to '/etc/dt/config/Xservers' and editing '/etc/dt/config/Xservers': change the last line from

```
:0 Local local_uid@console root /usr/openwin/bin/Xsun :0 -nobanner  
to  
:0 Local local_uid@console root /usr/openwin/bin/Xsun :0           -dev  
/dev/fb defdepth 16 -nobanner  
(one long line)
```

Note that older Ultra 5 and Ultra 10 systems only support 8 bit color depth.

Index

(Index is nonexistent)

Table of Contents

1	Overview.....	1
2	Install Solaris 9	1
3	Install Patches.....	3
4	Upgrade Java.....	4
5	Configure Basics	5
6	Configure NIS/NFS Server	6
7	Configure Samba	8
8	Setup to Run ITOS	8
9	Install Packages to Build ITOS	9
10	Make a CDROM	15
10.0.1	Create and Populate the '\$DIR/cdrom-image' Directory.....	15
10.0.2	Create \$DIR/cdrom-image.iso.....	15
10.0.3	Burn the CDROM.....	16
A	Appendix A Misc procedures.....	16
A.1	Running sys-unconfig to change NIS domain and/or IP address	16
A.2	Misc tasks	17
I	Index	18